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OBSERVATIONS OF LUMINOUS PHENOMENA AROUND THE HUMAN BODY: A REVIEW

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ABSTRACT

A review is presented of luminous phenomena seen around the human body. Cases reported with mediums, mystics and saints, dying persons, and other individuals are described. The discussion includes considerations of the evidential aspects of the cases, circumstances and characteristics of the reports, and some theoretical concepts that have been offered to explain the observations. Although some cases are consistent with some explanations, the bulk of the proposed explanations are unsupported speculations. Suggestions for further research include the exploration of psychological factors in the percipient, medical and physiological parameters of the person around whom the light is seen, and attempts to study physical aspects of the phenomena.

Mysterious and unexplained luminous phenomena have fascinated human-kind since ancient times (e.g., Corliss, 1982; Gaddis, 1967; Harvey, 1957; Rochas, 1911). The psychical research literature offers a variety of examples of unexplained luminous phenomena such as reports of glows seen around magnets, crystals and minerals (e.g., Reichenbach, 1851), lights reportedly seen with mediums (e.g., Ochorowicz, 1909), wandering 'spirit' lights (e.g., Layne, 1940), and luminous apparitions (e.g., Gurney, Myers, & Podmore, 1886, Vol. 1, pp. 444, 561-562, Vol. 2, pp. 46, 460), among others.

This paper will focus on observations of luminous phenomena around the human body. To limit the topic, I will only discuss cases in which the body itself, or its immediate surroundings (within about a foot of the body), have been reported to glow or emit some type of light. Only luminous effects visible by apparently normal means (although this is difficult to determine in many of the cases discussed here) will be considered. Under these limitations the following are excluded:

(1) the detection of invisible radiations emanating from the body by means of photographic plates (e.g., Baraduc, 1897; Ochorowicz, 1910),² and various other detection devices reported in the parapsychological literature (e.g., Dobrin, Kirsch, Kirsch, Pierrakos, Schwartz, Wolff & Zeira, 1979; Karolyi, Nandagopal

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² The literature of photographic detection of invisible 'paranormal' human radiations is vast and controversial. Montandon (1927) presents a positive (perhaps not too critical) perspective, while Fontenay (1911-1912) assumes a more negative and skeptical point of view.

& Wigg, 1983), as well as the use of ultraviolet light in the medical literature (e.g., Essén & Lindahl, 1953; Macdonald & Margolese, 1950).

(2) auras seen only by 'gifted' persons (e.g., Garrett, 1968; Karagulla, 1967), or through specific techniques or devices (e.g., Bagnall, 1970; Kilner, 1920); and

(3) the observations of luminous emanations from the body made by hypnotized persons in the old hypnosis literature (e.g., Luys, 1892; Rochas, 1894).

The cases and observations that follow will be discussed under the following headings; (1) mediums, (2) mystics and saints, (3) dying persons, and (4) other cases. No attempt is made here to prove either the 'reality' or the paranormality of the cases, since most reports are merely anecdotal and provide meager details. My purpose in this paper is to show the types of cases available in the literature, to review some explanations proposed in the past, and to suggest ideas for further research.

CASES OF ANOMALOUS HUMAN LUMINOUS PHENOMENA

Mediums

The report of different types of luminous manifestations seems to be common with many physical mediums of the past (for reviews see: Curnow, 1925, pp. 14-21; Geley, 1922, 1927, pp. 347-358; González Quevedo, 1971, Vol. 1, pp. 59-77; Montandon, 1927, pp. 84-109; Ochorowicz, 1909; Richet, 1923, pp. 478-483; and Zimmer, 1923).

D. D. Home was reported to produce many striking luminous phenomena. In one seance Dunraven (1924) observed that one of Home's hands 'became quite luminous' (p. 68), and that two persons 'saw tongues or jets of flame proceeding from Home's head' (p. 157). On another occasion:

He was elongated³ slightly . . . and raised in the air; his head became quite luminous at the top, giving the appearance of having a halo round it. When he was raised in the air, he waved his arms about, and in each hand there came a little globe of fire (to my eyes blue) . . . (p. 161).

Similar observations were made with Eusapia Palladino.⁴ Several observers noticed flames or spark-like emanations from Eusapia's body. Lombroso (1909) mentioned 'firefly-like bluish gleams' (p. 55) above her head, while Bottazzi (1907) saw violet flames that 'seemed to disengage themselves from the body of the medium, [and] then rose with a slow undulating movement, dissolving into space' (p. 383).

D'Arsonval and Marie Curie, well known French scientists who had sittings with Eusapia during the series of seances she held for the Institut Général Psychologique of Paris between 1905-1908, observed something like a 'luminous aureole' around her head. In d'Arsonval's words: 'The phenomenon was similar

³ The phenomenon of *elongation*, in which the body is supposed to stretch or expand beyond its normal size, has also been reported with other mediums (Holms, 1925, pp. 317, 320) and with mystics and saints (Thurston, 1936).

⁴ To my knowledge, Eusapia Palladino was never found trying to produce luminous phenomena by trickery. However, there is plenty of evidence of fraud regarding some of her other phenomena (e.g., Courtier, 1908, pp. 523-525; Feilding, Baggally & Carrington, 1909, p. 383; Flammarion, 1907, pp. 110, 203).

to the light emitted in darkness by a conductor charged with electricity.⁵ Around her head was some kind of a dark zone followed by a luminous zone similar to the dark cathodic space of the discharge from a Crookes' tube' (Courtier, 1908, p. 559, my translation). D'Arsonval stressed that before the seance in which that observation was made he searched the medium for any phosphorescent material she may have prepared to simulate luminous phenomena.

Morselli (1908) also reports observations of luminous phenomena with Eusapia in seances conducted in 1907. In one of them Morselli observed a whitish nebulous form above the medium's head 'disposed horizontally, as if a vague luminosity, slightly phosphorescent, emanated from all the medium's body . . . It vanished after 15 or 20 seconds' (vol. 2, p. 389, my translation).

Probably the most interesting observation was made with the Austrian medium Maria Silbert,⁶ around whom unexplained flashes of light were frequently reported (Bond, 1923). Father Huberto Rohden (1962, vol. 1) reports that in a 1926 seance with Silbert (while Rohden was a student at the University of Innsbruck) Maria Silbert, as soon as she fell into a trance, became:

all luminescent, radiating a soft, phosphorescent, somewhat greenish emanation like moonlight . . . From her fingertips, elbows and knees, come out, from time to time, stronger glimmers, beams that spread out in space. To appreciate better the luminosity, we would turn off the electric light, and all the living room was immersed in the suggestive light coming from the medium's body. (p. 55, my translation)

Rohden mentions that some apparatus (described only as manometers) were put near the luminous radiation, where they detected some energy. He also recorded the following interesting observation:

After much brightness, the beautiful phosphoric radiance slowly lost brilliancy, and when it was close to extinction the medium felt so weak that she almost fainted—and the pointers of our manometers went down to zero. However, the slightest contact with the hand of one of the observers was enough for the light to revive quickly. (p. 56, my translation)⁷

Rohden interprets this as evidence of a 'transfusion of magnetic fluids from a stronger battery to a weaker one' (p. 56, my translation), and emphasizes that

⁵ Ochorowicz (1909, p. 279) disagrees with this comparison, pointing out some differences between this phenomenon as observed with Eusapia and the appearance in darkness of a conductor charged with electricity.

⁶ Besterman (1929) records some suspicious observations suggestive (but not conclusive) of fraud with Silbert. Similar observations and accusations of fraud (second hand) are summarized by Dingwall (1924). H. Price (1939, p. 84) claims to have detected the medium in fraud. See also a short article by Lambert (1931).

⁷ Describing observations related to lights seen around the medium William Stainton Moses, Dr. S. T. Speer noticed that passes made over dim lights renewed their power, and that this 'seemed to be more easily and fully developed when I rubbed my hands together or on my coat' (Myers, 1893, pp. 275-276). In this context, though not specifically related to lights, it is of interest to notice Rudi Schneider's passes around a sitter's body to get 'power' (e.g., Price, 1926, p. 648), and the stamping and rubbing activities of the Winnipeg group mediums to 'release' forces for the production of physical phenomena (Hamilton, 1934, p. 119).

the medium 'instinctively' would almost always touch the two youngest persons of the group, presumably because of their stronger psychic energy.⁸

For other examples of luminous phenomena occurring in the context of mediumistic seances see: Geley (1927, pp. 290–292, 349–359) and White (1937, pp. 267, 272–275, 280, 282, 285–286, 290–291).

*Mystics and Saints*⁹

Luminous phenomena around the bodies of saints and mystics have been recorded since ancient times, as seen in the reviews of Christian literature published by Blasucci (1976), Görres (1854, pp. 61–93), Ribet (1895, pp. 593–603), and Thurston (1934). I will mention only a few examples here.

There are many short references to 'luminous saints' such as the description of St. Filippo Neri as 'all resplendent' (Incisa della Rocchetta, Vian, with Gasbarri, 1957, p. 16) and the Queen of Aragón's observation that St. Vicente Ferrer was seen 'surrounded with so much divine light, that she could see well all the details of his [dark] cell' (Antift, 1956, p. 149, my translation).

Many interesting observations of the illumination of St. Teresa de Jesús' face were recorded in the process of her canonization and beatification (for a review see Leroy, 1959). Ana de Bartolomé, a nun who was a nurse and close companion of St. Teresa declared that she saw her two times with her face illuminated. On one occasion St. Teresa was sleeping, and the witness sat at her side until she woke up, noticing an odour of 'relics' coming out from her.¹⁰ On another occasion, 'this witness saw that [the light from Teresa's face] illuminated all the chapter house . . . , but [does not] know if the other sisters were seeing it . . .' (Silverio de Santa Teresa, 1934, p. 135, my translation). Another interesting account is given by another nun, Ana de la Encarnación, who observed St. Teresa one time while she was writing her well-known book *Las Moradas*. As the nun declared:

One night . . . I saw from her cell's door, where I was waiting to see if she wanted something, that her face had a clear light, and from her came out glimmers like golden rays, and this lasted and I saw it for an hour's time . . . [When she stopped writing] the radiance went away, and it seemed she was in darkness as compared to when she was with the radiance. (Silverio de Santa Teresa, 1915, p. xiii, footnote, my translation)

Similar observations were made in connection with the Curé d'Ars. In 1849 Marie Roch came to see the Curé for confession. After a long delay she came close to the confessional and, according to Trochu's (1927) account, when she saw the Curé in the darkness of the confessional: 'The holy priest's face seemed to project two fiery rays, his features being completely hidden by the brightness of their light . . . Mlle. Roch gazed at it for at least eight or ten minutes, when it still shone with undimmed radiance' (pp. 530–531).

⁸ For a discussion of the concept of transference of paranormal energies between persons see Giacometti (1948).

⁹ Cases of mystics and saints are the only ones included in the paper from religious contexts. I have not attempted to survey demonic (or other types of) possession phenomena literature. I am acquainted with only one (second hand) report of this type (Crabtree, 1985, p. 103), which I owe to Patric V. Giesler.

¹⁰ For other cases of the so-called 'odour of sanctity' see Thurston (1920).

N. A. Motovilov (1948), a noble squire healed by the Russian mystic Seraphim of Sarov, describes striking luminous manifestations that he saw with Seraphim. In answer to Motovilov's question as to how he could recognize the true manifestation of God's spirit, Seraphim grabbed him by the shoulders and said they were both at that moment in the spirit of God. Motovilov could not look directly into Seraphim's face because of the great brightness emanating from it. As he wrote:

Imagine in the center of the sun, in the dazzling brilliance of his midday rays, the face of the man who talks with you. You see the movement of his lips and the changing expression of his eyes, you hear his voice, you feel someone grasp your shoulders; yet you do not see the hands, you do not even see yourself or his figure, but only a blinding light spreading several yards around and throwing a sparkling radiance across the snow blanket on the glade and into the snowflakes which besprinkled the great elder and me. (pp. 274-275)

The experience was accompanied with feelings of great calm and peace suggestive of a mystical experience.

Other accounts come from non-Christian traditions. Huart (1918) presents, in his compilation of Persian hagiographic documents translated into French, some accounts of luminous phenomena with mystics of the Islamic tradition. Brief descriptions of luminous phenomena can be found in the writings about mystics Abu'Absallah Muhammad b. Ashraf Al-Rundi (Austin, 1971, p. 118), Abu Ahmad Al-Salawi (Austin, 1971, p. 127), Rabi'a al-Adawiya (al-Din Attar, 1966, pp. 42, 46), and Saiyeden Hazrat Ghaus-ul-Azam (Salik, 1961, p. 63).

Erlendur Haraldsson has collected a variety of accounts of luminous and other apparent paranormal phenomena produced by the contemporary Indian mystic Sathya Sai Baba, who claims to be an Avatar. The following is one of the most dramatic accounts of luminous phenomena allegedly produced by Sai Baba, as recorded in the diary of one of his devotees some time in the 1940s:

All devotees had gathered at the bottom of the hill and were watching him. Already it was sunset . . . Sai Baba could be seen by all from there. Behind his head bright red rays, which resemble the rays of sunset, were shining. After some time, they disappeared and were replaced by a bright powerful light that was emanating crores [tens of millions] of blinding sunrays and that was glistening like a diamond on the head of a snake. Looking at it, unable to tolerate the brightness, two persons collapsed to the ground. All the people were staring with wide open eyes, overwhelmed with joy. Immediately the light disappeared and there was pitch darkness.¹¹

Dying Persons

There are many reports on record of observations made by bystanders of deathbeds at which emanations such as clouds, lights and other shapes were seen coming out of or moving around the dying person's body (for reviews of some cases see Bozzano, 1937, pp. 126-135; and Muldoon and Carrington, 1951, pp.

¹¹ I am grateful to Erlendur Haraldsson for his permission to use this account, which will appear in his forthcoming book on Sai Baba's alleged psychic phenomena.

104–105, 107–109). For purposes of this paper I will focus only on some of the luminous phenomena observed close to the body.

Several accounts of luminous phenomena in dying persons were published in 19th century medical literature (Huggins, 1845; Marsh, 1842; Watson, 1845; Wood, 1844). One of the most interesting is that reported by Marsh (1842), who observed a dying woman for some time. As he wrote:

After she settled [in] for the night I lay down beside her, and it was then that this luminous appearance suddenly commenced. Her maid was sitting up beside the bed, and I whispered to her to shade the light, as it would awaken Louisa [the patient]. She told me the light was perfectly shaded . . . The maid . . . informed me she had seen that light before . . . After watching it myself half an hour, I got up and saw that the candle was in a position from which this peculiar light could not have come, nor indeed, was it like that sort of light; it was more silvery, like the reflection of moonlight on water. I watched it for more than an hour, when it disappeared. It gave the face the look of being *painted white* and *highly glazed*, but it danced about . . . Her sister came into the room and saw it also. The evening before L.A. died I saw the light again, but it was fainter and lasted but about twenty minutes. The state of the patient was that of extreme exhaustion . . . Her breath had a very peculiar smell, which made me suppose there might be some decomposition going forward. (p. 170)

More impressive accounts can be found in later spiritualist publications. In a case reported by Tweeddale (1921) of the death of his mother-in-law he said that his daughter, his wife and a Mrs. Proud observed an unexplained cloud over the bed of the dying woman. As Tweeddale writes:

Then . . . the upper part of the smoke-cloud turned to a rich purple light . . . and this disc of purple light continued to hover steadily in the air at a height of a few inches about the recumbent form. Then . . . a beautiful halo began to form around the head of Mrs. Burnett [the dying woman]. It was at first pale in colour, but gradually deepened to a rich purple, which stood out in conspicuous contrast to the white pillow. It stood off from the head about three inches and was about four broad, the colour becoming deeper on the outside edge, while the inside of the halo was fainter and more transparent. The outer edge was irregular or serrated as if divided into a number of lights or flames.

As soon as this wonderful thing had well established itself, the deep purple light began to surround each eye of the unconscious person and outlined the nose, and finally surrounded the nose. During all this time the big disc of purple light hovered over the abdomen, and this disc, together with the wonderful halo around the head, and the lights on the face continued to be visible to them all for nearly twenty minutes . . . (p. 551)

A case similar to the preceding one is that of Dorothy Monk's mother. The dying woman was surrounded by relatives at her deathbed when unexplained blue lights were seen near her and about the room. According to the report:

At dusk that afternoon as she lay perfectly quiet, I and three sisters all at once noticed a pale blue mauve haze all over her as she lay. We watched it

and very gradually it deepened in colour until it became a deep purple, so thick that it almost blotted out her features from view, and spread all in the folds of the bed clothes like a purple fog. Once or twice she feebly moved her arms and the colour travelled with them. (Monk, 1922, p. 182)

Other appearances and lights were observed by some persons but not by others, though all were in a favorable position to make the same observations. Clouds of white mist were seen over the dying woman by the reporter of the case, her five sisters, a brother and a brother-in-law. Some hours later it was observed that 'a halo of pale yellow light rays came round her head; there were about seven in number; they varied in length from twelve to twenty inches at different times' (p. 182).

Elizabeth McAdams (1984) has investigated a recent case in a hospice in California where several persons observed luminous effects around a dying 68-year-old man for several hours on the day of his death. Some persons could not see the light, though they were in a position to do so.

Other cases are briefly mentioned by Cross (1939, pp. 90-91) and by Matson (1975, pp. 13-14).

Other Cases

In this section I will mention cases occurring under a variety of conditions.

Perhaps the best investigated case of a 'luminous' person on record is that of Anna Monaro, an Italian woman who showed an unexplained light from the region of her chest in a convalescent home in Pirano, Italy (Protti, 1934; Vitali, Trabacchi & De Sanctis, 1934). Dr. Giocondo Protti (1934), an Italian physician, investigated the case in detail in Pirano. Protti started his investigation by interviewing physicians, nuns, and patients in the hospital who had observed the light. Among other things, the testimony indicated that: (1) the light always appeared around the cardiac region; (2) it was seen with a fan-like form and, more rarely, as a globe; (3) it was usually blue and green; when seen as a globe it was pink, but it also showed diverse iridescent tonalities when disappearing; (4) its duration was about three to four seconds; (5) it appeared with Monaro's crepuscular period; (6) it was never seen during the day, but only during the night; (7) it was often seen when Monaro was sitting on the bed with her chest uncovered by the blankets; (8) it appeared and disappeared without Monaro's awareness; (9) it did not leave any trace of its appearance (heat, odor); (10) it appeared with greater frequency and intensity on dry days as opposed to humid and rainy days; (11) on each manifestation Monaro awakened with a moan (usually an invocation to Jesus); (12) the menstrual cycle had no relation with the light.

Protti found that the lights started when Monaro was fasting during Holy Week. In the three days of the fasting during which she had only some water and soup, the light was more frequent and intense. Protti was able to film the light for about three seconds. Placing an electroscope near Monaro he found that there was no air ionization near her when the light appeared. Other findings were:

(1) no salient physical or mental disorder (with the exception of asthma, hypertension, and 0-10 per cent of albumin in the urine);

- (2) irregular pulse and respiration rate during sleep;
- (3) increase in heart and respiration rate during appearances of the light.¹²

Monaro was studied later in Rome by a commission of physicians. Although there were no manifestations of luminous phenomena, more systematic and detailed psychological and medical examinations did not reveal any anomalies in Monaro (Vitali *et al.*, 1934). In the report she is described as a person having religious visions through her life, and as having vivid dreams and imagination. She is considered an example of a person with a 'fantastic-hallucinatory' predisposition, that is, a person who, though not necessarily suffering from pathology, is prone to altered states, fantasy and mythomania.

Féré (1905) reported firsthand observations of anomalous luminous phenomena he observed with some of his patients suffering nervous disorders. As he wrote:

In 1883, I observed a woman of 28 years of age, who came of a neuro-arthritic family, and was, herself, subject to various hysterical symptoms during the previous ten years: convulsion, anorexy, white oedema with permanent stigma . . . She had also violent, generally menstrual, attacks of headache . . . It was during an unusually painful attack, accompanied by sensation of frontal bruising, and by cold in the cyanotic extremities, that I was struck . . . by the sight of a light possessing a radius of about 20 cm, which encircled her head; the light, which was of an orange colour, diminished in intensity near the periphery. The same phenomena was manifested around her two . . . hands. The skin, which was usually white and *mat*, had taken an orange tint, of a deeper shade than the halos. (pp. 70-71)

The change in color in the skin occurred before the lights appeared. Both disappeared later when the patient vomited. The patient's husband said he had never seen such phenomena before (though it is not clear from the account if he was present when Féré made the above-quoted observations).

Another case reported by Féré (1905) is that of a woman 25 years old suffering from monthly headaches since her puberty, when she was 13 years old. The case occurred in 1884 when the woman was suffering from a strong headache and Féré was present. As Féré wrote:

The young woman . . . stiffened herself back; at the same time, her skin presented a change and became, suddenly, of an orange colour . . . : then a light, of the same orange colour, was manifested around the head and hands . . . The phenomenon only lasted for a few minutes, after which the patient recovered power of speech. (p. 71)

Rocha de Azevedo (1980) briefly reported three cases of anomalous luminous

¹² Protti also claimed to have found that Anna Monaro's blood had three times the 'radiation' of normal blood. However, he did not specify his method of measuring this radiation or in any way relate his observations of such a radiation to earlier work by himself or others. Bateman (1934) severely criticised the suggestion of a radiation from the blood and suggested that there was something fundamentally wrong with Protti's claim in this matter. In later tests mention is made again of the radiation measures from the blood, but no methodological details are presented. This time there were no abnormal readings, but the phenomena was not manifesting when the tests were performed (Vitali *et al.*, 1934, pp. 213, 225).

effects, but I will describe only one of them here.¹³ Rocha de Azevedo was visiting Mr. A. R. one night at his (A.R.'s) home when he was surprised to see 'luminous rays' coming out from A.R.'s hands. The 'rays' were of a blue-green color and about a meter long. They were seen coming out only from his hands and lasted a few seconds. A.R. was passing through a difficult period because he had been suspended from his job in an important business because of a burglary committed there. The lights were seen frequently until A.R.'s situation was cleared up and he was asked to return to his job. Forty-five days elapsed between the first observation of the phenomena and its disappearance.

EVIDENTIAL ASPECTS OF THE CASES DISCUSSED

As mentioned before, the cases presented here are not offered as proof of the existence of luminous phenomena related to the human body. Nonetheless, it may be useful to point out some evidential problems with some of this material.

Fraud

The issue of fraud is a serious problem, especially in the case of mediums. Many techniques have been developed to produce different types of luminous effects fraudulently in the darkness of the seance room (e.g., Carrington, 1920, pp. 252-253, 269-270; Tocquet, 1952, pp. 111-114). Richet (1923) considered that luminous effects had not been established to occur with mediums but wrote that, although fraud may occur in the production of lights, these 'are phenomena that no medium can produce by trickery after he has been carefully searched' (p. 483). Unfortunately, the case of the medium Pasquale Erto, around whom some remarkable luminous phenomena were observed (e.g., Geley, 1924; Sanguinetti, 1922) proves that things are more complex than Richet maintained. Erto was never (to my knowledge) discovered in fraud, but there is circumstantial evidence that points strongly towards trickery on his part. In sittings sponsored by the Institut Métapsychique International in Paris, Erto worked in complete darkness and was not held by controllers but he was anatomically examined, dressed in a leotard covering all his body, and his hands were enclosed in boxing gloves. Under these conditions, and with a magician present, he was not directly detected in fraud, but according to Geley (1924) the following suspicious circumstances emerged. A hole in the genital region of Erto's leotard was found on one occasion, which coincided with the medium's opposition to being examined in that area of his body after the seance. Also, a small block of ferrocium was found in the syphon of a washbasin where Erto had washed himself the day before, the place being closed and unused by anyone other than sitting participants. It was found that by rubbing ferrocium against other materials, such as metals, luminous effects similar to some of those produced by Erto could be obtained. The report of later seances conducted by different investigators (Berné, Bloch, Garçon, Heuzé, Lormand, Marcotte, Maingot & Vinchon, 1926) revealed that a small piece of ferrocium was found in one of the medium's shoes, that a piece of ferrocium and a steel pen nib were found near the medium's chair when the room was cleaned, and that the use of a magnet

¹³ I am grateful to J. Rocha de Azevedo for additional information he sent me regarding his cases of luminous phenomena.

showed that there were similar objects in the medium's clothes. Finally, Harry Price (1933) also reported finding ferrocerium and other suspicious metallic particles on the floor surrounding the medium's chair the day after the seance was held.

In a later report Servadio (1932) defends the medium from the inferences drawn in the previously mentioned reports, and affirms that he obtained luminous phenomena with Erto unexplained by the use of ferrocerium. However, the fact remains that the above mentioned circumstantial evidence is not favourable to the genuineness of Erto's luminous phenomena and illustrates how difficult these investigations can be.

Another report that shows the difficulty of this type of investigation is that of the medium Anna Burton (pseudonym of Ada Bessinet) (Hamilton, Smyth & Hyslop, 1911). The investigators had evidence of what they thought was unconscious fraud (pp. 51, 456), and on one occasion they found the medium's saliva to be phosphorescent (pp. 234, 243). But they were still puzzled about the true nature of lights seen close to the medium (and sometimes at a distance) (pp. 70-77) since they could not explain or reproduce them or find evidence for fraud other than the suspicious incident of the luminous saliva. Hyslop wrote in the report that: 'The objection which any claim to the existence of supernormal lights has to meet is that the discovery of 'natural' methods of producing other apparently supernormal phenomena at least suggests undiscovered methods of producing the lights in a normal manner' (p. 76). He presented several qualifying statements regarding acceptance of normal and paranormal explanations, but said that his personal impression was that the lights seemed 'to be very good evidence for supernormal phenomena' (p. 77) because of his inability to explain them. (In a later publication Hyslop (1919) briefly mentioned luminous phenomena with Burton involving alleged ESP-acquired information expressed in words written in 'letters of fire' (pp. 267, 350). He seemed to consider that the manifestations were of a paranormal nature.)

Fraud in the production of luminous effects has been reported with self-confessed fraudulent medium Ladislav Lasslo (Schrenck-Notzing, 1924), and with mediums Guzik (Price, 1933, p. 347) and Margery (Tietze, 1973, p. 138).

Problems with Reporting Style

A problem with many of the cases discussed here is the lack of important details regarding observers and circumstances (e.g., number of persons, position of persons, details about the light's color, shape and duration). It is to be hoped that future reports may improve the situation.

Although collective perceptions have been claimed in some cases, the testimony of each person has never been presented, with a single exception (McAdams, 1984). Usually one person summarizes what others supposedly saw (e.g., Tweedale, 1921). The possibility of finding contradictory testimony or just different perceptions (see next section) is almost eliminated because of the inefficient reporting style.¹⁴

¹⁴ See Green and McCreery (1975, pp. 41-43) for comments on the difficulties of making sure that descriptions of collectively perceived apparitions are different from one witness to another because of distortion of testimony and/or different perceptions, and on the lack of attention paid to the possibility of different perceptions of the apparitional experience by the percipients.

Other Problems

The evidential value of most of the cases discussed here is low not only because of inadequate records but also because of lack of adequate interviews with the persons involved in the cases. Additionally, other problems common to spontaneous psi research such as malobservation, defects of memory, and motivated errors should be considered (Stevenson, 1968).

OBJECTIVE, HALLUCINATORY, AND PSYCHIC PERCEPTIONS

Discussing perceptual reports of the aura, Tart (1972) has pointed out that there may be physical auras (capable of being detected by instruments), psychological or hallucinatory ones, and psychic auras, in which a different type of 'objective reality' is perceived by paranormal means (see also Bigu, 1976). The reports reviewed here may be conceptualized in a similar way, although in practice it is very difficult (sometimes impossible) to classify them because of lack of information.

The case of Anna Monaro indicates a physical perception of light, since the luminous effect was seen and registered on film (Protti, 1934).

The collective¹⁵ deathbed observation cases reported by McAdams (1984) and by Monk (1922), in which some observers saw things others could not,¹⁶ may suggest a psychic perception if we consider, as Bozzano (1923, pp. 234–235) did in relation to deathbed witnesses' reports of apparitions and 'transcendental music', that the process in question is a 'spiritual' or 'psychic perception' that not everyone is sensitive enough to experience.¹⁷ This, however, is not enough to support the point because selective perception is also known to occur with normal perceptual processes. Also, a hallucinatory model postulating different gradations of the experience arising from normal variability of imaginal capacities or suggestibility levels should not be rejected for some cases.

The rest of the cases are difficult to classify since some involved only single witnesses, and others for which collective percipience is claimed lack detailed descriptions of the observations of each one of the persons involved in the case.

In summary, it is not possible to classify the reports with certainty following Tart's (1972) categories, though it is possible that we may be dealing here with luminous effects requiring diverse explanations.

¹⁵ Regarding collective percipience and its implications towards 'objective' or 'subjective' perceptual explanations see: Gurney *et al.* (1886, Vol. 2, pp. 168–270, 277–316), Hart & Hart (1933), and Vesme (1938).

¹⁶ There are many cases recorded in the literature of visual and auditory impressions perceived by only one or some of the persons present but invisible or inaudible to others. For examples see: Bozzano (1923, p. 234, auditory), Collective Apparition (1893, visual), Morton (1892, visual), Gurney *et al.* (1886, Vol. 2, pp. 221–223, auditory; pp. 237–238, visual; pp. 619–622, visual). Other reports emphasize different perceptions (e.g., seeing or hearing, seeing or feeling a presence) in the persons present at the moment of the experience (e.g., Crookes, 1874, p. 92; Gurney *et al.*, 1886, Vol. 2, pp. 203–204, 236–237, 639–641; Sidgwick *et al.*, 1894, pp. 318–319).

¹⁷ It has been suggested that the form a psychic perception may take depends on the mental idiosyncracies, imagery preference, or cognitive coding style of the percipients (e.g., Bozzano, 1907, p. 362; Bullough, 1909; Irwin, 1979a; Gurney *et al.*, 1886, Vol. 2, pp. 171–172), a hypothesis that may be related to the selective percipience phenomenon discussed here.

ANALYSIS OF THE CIRCUMSTANCES AND CHARACTERISTICS RELATED TO THE REPORTED PHENOMENA

This section will discuss different aspects of the cases to see if there are patterns or important characteristics. However, this should be considered only as a tentative and superficial analysis because: (1) I have not been able to survey all available reports, and (2) many details are missing from the reports, especially in the case of mystics and saints, since these were either briefly reported or I have not been able to consult the original reference (many of which were published before the 19th century) to obtain more details. Because of these limitations, I have not attempted any analyses of the characteristics of the lights (e.g., form, color, duration, and other physical aspects).¹⁸

Circumstances of Occurrence

Type of persons involved in the cases. The cases here discussed have been classified according to the persons showing the luminous manifestations. They have been divided into those concerning special or gifted persons (mediums and mystics and saints), those concerning dying persons, and others in which the 'luminous' persons generally have some sort of physical or mental problem. Differences and similarities between these categories will be discussed under the following headings. Unfortunately, there is not enough information in the reports to do similar analyses regarding the observers.

Psychological aspects. Most of the cases involved some sort of altered state of consciousness (ASC) in the person around whom the light was observed. The mediums were in trance, and the mystics and saints were generally in prayer, meditation, or ecstasy. Dying persons may also be considered to be in an ASC. The case of Monaro (Protti, 1934) and the cases reported by Féré (1905) occurred when the subjects were falling asleep or suffering from headaches. On the other hand, cases like those of Sai Baba, Seraphim of Sarov (Motovilov, 1948) and A.R. (Rocha de Azevedo, 1980), do not present clear evidence of an ASC.

Other psychological aspects are the presumed diseased condition of the subjects reported by Féré (1905) and the crises suffered by two subjects reported by Rocha de Azevedo (1980), although more evidence from systematic studies is needed before any correlation can be seriously established.

Physiological aspects. The reports of phenomena with dying persons offer scanty details on the condition of the persons close to death, and there seem to be no clear common patterns in the few cases for which there is information.

Féré (1905) has described three cases of luminous phenomena in which the persons around whom the light was seen were suffering from nervous conditions and severe headaches. In one of the cases the headache was described as menstrual in origin, but in the case of Monaro there was no relationship between the flashes of light and the subject's menstrual period (Protti, 1934).

¹⁸ No information is available on possible physical properties of the light (e.g., smells, heat, electrical components) with the exception of Monaro's case where it was found that the light could be photographed and that it did not produce ionization effects. Smells are of particular interest since in the past there have been reports of ozone or phosphorus-like smells accompanying materializations and luminous phenomena with a variety of physical mediums (e.g., Geley, 1923, pp. 213, 221; Instituto Mexicano de Investigaciones Síquicas, 1960, pp. 89-90, 129; Pawlowski, 1925, p. 487).

In Monaro's case radiation measures taken from her blood were three times higher than average normal measures,¹⁹ and the appearance of the luminous phenomena coincided with increases in heart and respiration rate. This is similar to the observations reported by Osty and Osty (1932) about the apparent infra-red detection of a 'force' 'emanating' from the medium Rudi Schneider that was synchronized in its movements with the medium's respiration rate. The observation with Monaro is also consistent with physiological measures taken of physical mediums, in whom changes in pulse rate and other functions seem to be related to reported paranormal physical phenomena (e.g., Courtier, 1908; Geley, 1927; Price, 1926). There are also some anecdotal observations of physiological changes in physical mediums during luminous phenomena. Maxwell (1905, p. 158) hints at an unspecified connection in Palladino between breathing and luminous phenomena. On one occasion 'convulsive shivers' were observed in Stella C. before flashes of light appeared (Price, 1973, p. 129). With the Mexican medium Luis Martínez a light was reported to disappear when the medium coughed (Instituto Mexicano de Investigaciones Síquicas, 1960, p. 118). However, these observations with luminous phenomena are mere anecdotes of unsystematic observations.

RELATIONSHIP WITH OTHER PHENOMENA AND WITH DIFFERENT TYPES OF LUMINOUS EFFECTS

Although this study has been limited to luminous phenomena, and particularly to those close to the human body, it is of theoretical and general interest to note how these phenomena may relate to other alleged paranormal occurrences and to luminous effects away from the body.

Relationship with Other Phenomena

Materializations. Luminous effects have been associated with ectoplasmic materializations. Sudre (1962) considered some of them as 'foci of condensation' (p. 239) of ectoplasm of the nebulous type, whereas Geley (1921) believed they 'represent the first stages of materialization . . .' (p. 174) (my translation). It has been suggested that the same energy responsible for ectoplasmic formations also produces light, since this energy is thought to be able to assume different forms and perform different tasks (e.g., Geley, 1927; González Quevedo, 1971; Montandon, 1927). Zimmer (1923) has speculated that when ectoplasm is luminous its chemical properties are different from those of non-luminous ectoplasm. However, all this should be viewed with caution considering inherent difficulties in evaluating the validity of the claims regarding materialization.

Other phenomena. It should also be pointed out that the luminous phenomena studied here have coincided with other manifestations such as elongation (Dunraven, 1924, p. 161), levitation (Dunraven, 1924, p. 161; Leroy, 1928, pp. 42, 53, 60, 64, 68), stigmatization (Festa, 1949, p. 225; Imbert-Gourbeyre, 1894, pp. 178, 182), and automatic or inspirational writing (Silverio de Santa Teresa, 1915, p. xiii, footnote).

¹⁹ These observations seem suspect. See footnote 12 for additional comments.

Relationship with Luminous Phenomena Occurring Far Away from the Body

The distinction between luminous phenomena seen close to the body and those seen separated or far away from the body may be an artificial one. Mediums who have exhibited luminous phenomena close to their bodies have also been associated with lights occurring at a distance (e.g., Geley, 1927; Morselli, 1908). Similar observations have been made with saints (e.g., Görres, 1854, pp. 66, 71-72; Ribet, 1895, pp. 598-599) and with dying persons (e.g., Donovan, 1840; A Spirit Mother, 1907).

Religious vs. Non-Religious Contexts

It has been argued that luminous phenomena in saints may show more intensity than the lights reported in non-religious contexts (Vega, 1976). It is also my impression that this is the case because I have only found reports in which the whole room (chapel or church) was said to be strongly illuminated in cases with mystics and saints (e.g., Antift, 1956, p. 149; Silverio de Santa Teresa, 1934, p. 135).

THEORETICAL CONCEPTS TO EXPLAIN LUMINOUS PHENOMENA

Several explanations have been presented in the past to explain luminous effects observed around the human body, though most of them have been offered in specific contexts (e.g., mediums, dying persons). I shall summarize these concepts briefly. Some of them may apply to certain of the phenomena, but I wish to emphasize that we have no strong support for any of them. It seems likely that we need to explain a variety of different phenomena each type of which may require a different explanation.

Perceptual Distortions, Illusions, Hallucinations

Several normal explanations may be offered. Examples are hallucinations generated by expectations, beliefs or the demand characteristics of specific contexts or situations (e.g., seances, religious activities). Also, temporal lobe disturbances and entoptic phenomena in the process of vision may be considered for some cases. Other aspects such as illusions, afterimages, retinal fatigue, and contrast effects have been proposed in the past to account for auras (e.g., Fraser-Harris, 1932; Neher, 1980; Owen and Morgan, 1974) and may be relevant in this context. Unfortunately, since most of the reports offer little information about the person observing the luminous effect it is difficult to test the validity of these explanations. On the other hand, such explanations present difficulties in dealing with cases of collective percipience and with repeated observations under different circumstances.

Biophysical Concepts

Physical processes. There is evidence for the existence of various normally invisible physical fields around the human body such as magnetic, ultraviolet, and thermal emanations, that perhaps may be visible to some persons, or that may have special properties around the body of certain individuals or under particular circumstances (Bigu, 1976).

Electrical explanations have also been suggested (e.g., Nody, 1929). In fact, there are some cases in the old literature that strongly suggest electrical potential

changes as an explanation for sparks seen around the human body (e.g., Féré, 1888; Mussey, 1838). Although some parapsychologists have considered apparent electrical lights together with others assumed to be paranormal (González-Quevedo, 1971; Rochas, 1896), others have made the point that mediumistic lights are independent of electrical effects (Bret, 1927; Ochorowicz, 1909). (For a discussion of electrical explanations of paranormal physical phenomena, including luminous effects, see: Koopman, 1937, and Mondeil, 1937-1938).

Physiological processes. Some authors have suggested a vague relationship between nervous tension and the production of light by electrical or nonspecified means (e.g., Féré, 1905; Melcior y Farré, 1900). Nody (1929) speculated on an interaction between intense nervous excitation, electrical tension, and phosphorescent substances from the body in the production of luminous effects.

Others have speculated about nonspecific mechanisms such as the emission of phosphorescent substances from the epidermis (Jordán Peña, 1979). This brings us to proposed analogies between animal bioluminescence and the phenomena we are discussing here (for some discussions along this line, see Geley, 1927, p. 343; Myers, 1903, Vol. 2, pp. 538-540; and Zimmer, 1923, pp. 194-196). Much has been done in the field of animal and bacterial bioluminescence, basically a process of chemoluminescence (e.g., DeLuca, 1978; Herring, 1978; Nicol, 1962). However, there does not seem to be evidence to support the argument of human luminescence through chemoluminescence process. Harvey (1957) explains some cases of human luminescence by bacterial infections. As he wrote: 'The instances of luminous human beings are fascinating to read of, but it is quite certain that man has never acquired the ability to produce light like that of the firefly' (p. 3).²⁰

In relation to luminous phenomena on the body of dying persons it has been proposed in some 19th century medical publications that the light represents the beginning of the decomposition of the body and may be related to the phenomenon of so-called spontaneous human combustion (e.g., Marsh, 1842; Watson, 1845).²¹

Although open to serious criticism (see Bateman, 1934, and my comments on footnote 12), mention should be made of Protti's (1934) suggestion that Monaro's phenomena could be explained by postulating an interaction of the abnormal radiation levels of her blood with sulphuric and ultraviolet components of the blood.

Collier (1843) reported a case of a person whose skin became luminous when

²⁰ Harvey's opinion is interesting because he was a respected pioneer of bioluminescence research. However, it is of historical interest to point out that Dubois (1922), another important early pioneer of bioluminescence research, was willing to consider the possible existence of 'metapsychic bioluminescence' as an explanation of cases unexplained by the action of foreign substances or bacterial infections.

²¹ The topic of spontaneous human combustion may not be well respected or discussed in modern medical literature, but there are several discussions of it in the 19th century (e.g., Apjohn, 1845; Hartwell, 1892; for a brief review see: Nickell & Fisher, 1984; and Oliver, 1936). For a highly critical and negative perspective of this phenomenon in the same period see: Spontaneous Combustion (1861).

he consumed a diet rich in fats. Apparently the luminosity was caused by a bodily secretion, since the man's shirt was also luminous. Another case of an unexplained body secretion was observed by Joseph Maxwell in connection with a medium who glowed in the dark. Maxwell cleaned the medium's skin with chemicals and made him exercise under observation to increase the perspiration rate. The medium was again observed to glow in the dark. At the time, the medium was eating six eggs a day and taking a tonic with phosphate of lime (Private Meeting, 1905). Abnormal luminous physiological secretion may therefore explain some cases.

Paranormal Concepts

These concepts may be divided into (1) paranormal manipulation of bodily processes or substances, (2) the action of paranormal energies unrecognized by science, and (3) religious explanations.

Paranormal manipulation of bodily processes and substances. Myers (1903, Vol. 2, p. 541) considered the possibility of a paranormal action causing the exteriorization of the phosphorus of a medium's body as an explanation of luminous phenomena. Hyslop proposed a similar idea when he wrote: 'We know . . . that the human organism secretes phosphates very freely and it may be possible that certain persons extraordinarily endowed may be able, either through their own powers or the intervention of foreign agencies, to analyze these phosphates and expose them to oxygenation, in which case lights would be producible' (Hamilton, Smyth & Hyslop, 1911, pp. 77-78).

Paranormal energies. The concept of paranormal body energies (so-called 'human radiations' or 'fluids') has a long history in occultism, Spiritualism and psychical research as a phenomenon by itself and as an explanation for diverse phenomena (e.g., Amadou, 1953; Dumas, 1953; Montandon, 1927). This energy is considered to be the vital energy of the body, which can produce telekinesis, materializations and luminous phenomena when externalized. These ideas, or variants of them, have been used mainly by European parapsychologists to explain luminous phenomena (e.g., Geley, 1927; González-Quevedo, 1971; Montandon, 1927; Rochas, 1896; Sudre, 1962). Explanations closely related to this are those that postulate the concept of a 'double' or a subtle body (e.g., Bozzano, 1937; Crookall, 1967; White, 1937).

A variant of these concepts postulates that what is perceived as a light is not a physical energy but some sort of 'non-physical' energy or another level or dimension of reality that can only be perceived through paranormal means. Myers (1903) wrote of 'metetherial luminescence' (Vol. 2, p. 542). Tart's (1972) 'psychical aura' is basically the same idea. Also relevant in this context are discussions in parapsychological literature of psychometric and 'etheric matter' explanations of apparitions and hauntings (e.g., Bozzano, 1920; Hart & Collaborators, 1956; H. H. Price, 1939), as well as various conceptualizations of 'nonphysical space' or dimensions (e.g., Hart, 1953; Smythies, 1951), all of which are difficult to test scientifically.

Religious explanations. In religious and mystical conceptualizations it has been contended that the luminosity seen around mystics and saints reflects the gifts of the Holy Spirit and the spiritual quality or grace of the person in question (e.g., Arinterro, 1968; Görres, 1854; Ribet, 1895). These are basically metaphysical and

non-testable explanations. Also, they seem unlikely explanations, since the same or similar phenomena are reported in persons who are apparently not saintly.

SUGGESTIONS FOR FURTHER RESEARCH

Further research on these phenomena can be conducted from different perspectives, as outlined in the section of theoretical concepts. We should also be aware that these studies may emphasize the person seeing the luminous effects, or the person around whom the luminous effect is reported. I will discuss below a few ideas for further research under the following headings: (1) psychological aspects, (2) medical and physiological aspects, (3) physical aspects, and (4) other aspects.

Psychological Aspects

Following the emphasis of research in cognitive aspects of ESP reported in the literature during the last decade or so (e.g., George, 1981; Irwin, 1979b), the role of mental imagery and other cognitive variables in observers reporting luminous effects may be explored. Aspects such as absorption (Tellegen and Atkinson, 1974), fantasy-proneness (Wilson and Barber, 1983), vividness of visual imagery (Marks, 1973) or diverse types of imagery such as eidetic images and after-images (Horowitz, 1978) may be studied in relation to perception of luminous phenomena.²²

Also, more attention could be given to the state of consciousness and to possible psychopathological variables in both the person exhibiting the phenomenon and in the observer.

Medical and Physiological Aspects

Physiological studies of the person around whom the effect is seen could be done as in the case of Monaro (Protti, 1934; Vitali *et al.*, 1934), to see if the phenomenon is related to abnormal conditions or diseases, or if the phenomenon induces or is associated with physiological changes such as alterations of pulse rate and endocrinological functions, among other possible variables. Similar studies could be done from the point of view of the observer, taking into consideration factors such as problems in vision and possible temporal lobe symptomatology. (Whitton (1974) reported a study of EEG correlates of aura vision.)

Physical Aspects

Attempts could be made to study the various physical aspects of luminous phenomena. We could try to photograph and film the lights, and check for possible electrical or chemical properties, as well as intensity level, duration, and other variables. Spectrographic analyses, as done in the field of animal and bacterial bioluminescence (e.g., Herring, 1978; Nicol, 1962), could also be performed. Such analyses have been proposed and attempted (with no success) in connection with physical mediums (e.g., Grunewald, 1920, pp. 58-63; Lipschitz, 1931; Maxwell, 1905, p. 148). For this purpose, diverse photometric devices such as photomultiplier tubes and other apparatus used in bioluminescence studies (e.g., Barenboim, Domanskii, and Turoverov, 1969, pp. 143-197;

²² Regarding auras, see Owen's (1972) attempt to correlate reports of such phenomena with visual vividness level.

Picciolo, Deming, Nibley, and Chappelle, 1978) and aura detection research (e.g., Dobrin *et al.*, 1979; Karolyi *et al.*, 1983) may be used.

Other Aspects

More information is needed on the phenomenology of the lights. Information about frequency of colors, duration, and other aspects such as shape should be more systematically collected in future studies.

The study of cases with collective percipience should receive special attention, especially in regard to similarities and differences in the witnesses' perceptions. In this respect we should try to improve the quality of the reports of the cases, including the independent testimony of all observers with full details.

CONCLUDING REMARKS

The purpose of this review has been to present in a single paper diverse reports of anomalous luminous effects observed around the human body in order to highlight some of the available material on the topic, present possible explanations, and make suggestions for further research. No attempt has been made to defend any particular explanation, although on some occasions I have pointed out that some findings and observations are consistent with particular explanations.

Regarding the validity of the explanations, I want to emphasize the importance of further research before making any assessment of the explanatory value of the concepts summarized here. It should be remembered, however, that we may be dealing with a variety of effects having a diversity of explanations.

The case of Anna Monaro offers a model of a single case study in which psychological, psychiatric, medical, and physical aspects of the phenomena were considered in the study of unexplained luminous phenomena (Protti, 1934; Vitali *et al.*, 1934). It is to be hoped that this approach may be employed again if a similar case comes to the attention of competent investigators.

In previous sections I pointed out some methodological problems with these cases. I want to emphasize again that a review such as this one must be accepted with caution since I cannot claim either to have a representative sample of relevant cases in each category, or to have overcome the problem of incomplete or biased reporting in the surveyed literature. Also, and especially regarding mystics and saints, I have not been able to obtain some primary sources published before the 19th century.

Nonetheless, it is my hope that the information presented here may stimulate further investigative interest in these currently neglected phenomena.

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Unusual Weather:

Ball Lightning in a February Thunderstorm Down East in Maine

The following three excerpts from the *Ellsworth Herald*, published at Ellsworth, Hancock County, Maine, describe the antics of a freak winter thunderstorm occurring during a snowstorm in February 1853. These were located through the courtesy of Herbert T. Sisby II of the Maine Historical Society.

A most welcome old fashioned north-east snow storm visited this locality on Sunday noon and continued until about three o'clock on Monday morning, giving us about seven inches of snow. During the raging of the storm at the fiercest on Sunday evening, loud claps of thunder followed by exceedingly vivid lightning were noticed as very singular phenomena. Even the "oldest inhabitant" does not remember the like during a snow storm in Maine.

Ellsworth Herald, Friday, February 18, 1853, page 2, col. 7.

The Storm at Mount Desert

In our last, we noticed the fact of thunder and lightning during a severe snow storm on the evening of Sunday, 13th inst. We have since learned that the storm was most violent in Mount Desert. At Bass harbor, the lightning struck four people and shivered into a thousand splinters a large spruce tree. Two vessels at N.E. Harbor and one at S.W. Harbor were also lightning-struck and thereby considerably damaged.

Ellsworth Herald, Friday, February 25, 1853, page 3, col. 5.

A Thunder and Lightning Story

The following statement, dated Bass Harbor, Mt. Desert, Feb. 16, is made to the Fountain, in the authority of Mr. John S. Dodge:

A thunder-cloud passed over this village on Sunday evening last, which, for terrific appearance surpassed anything ever before known here.

The wind during the day had been from the N.E., accompanied with snow, with a temperature of from 15 to 20 deg. above 0—at 6 P.M. had increased to a heavy gale, and at

7 P.M. ceased to blow, and flashes of vivid lightning commenced.—In a few minutes more, thunder was heard in the N.W., and at 8½ P.M. the scene was grand and awful beyond description. The lightning was of a purple color, and sometimes appeared like balls of fire, coming through windows and doors and down the chimneys, while the houses trembled and shook to their very foundations.

Mrs. E. Holden was near a window, winding up a clock: a ball of fire came in through the window and struck her hand, which benumbed her hand and arm. She then, with all in the house, retreated into the entry. Another flash succeeded, and, in the room from which they had retired, resembled a volume of fire, whirling around and producing a cracking noise.—A similar appearance of fire was seen, and cracking noises were heard in a large number of houses. Some who heard the noise, say it sounded like breaking glass.

Capt. Maurice Rich had his light extinguished, and his wife was injured. He got his wife onto a bed and found a match: at that instant another flash came and ignited the match and threw him several feet backwards. John L. Martin received such a shock that he could not speak for a long time.

A great many persons were slightly injured. Some were struck in the feet, some in the eye: while others were electrized, some powerfully and some slightly. But what was very singular, not a person was killed or seriously injured, nor a building damaged: but a cluster of trees within a few rods of two dwelling houses, was not thus fortunate. The electric fluid came down among them, taking them out by the roots, with stones and earth, and throwing all in every direction. Some were left hanging by their roots from the tops of the adjacent standing trees—roots up, tops down.

The lightning, after entering the earth to a depth of several feet, and for a space some 5 to 10 feet in diameter, diverged into four different directions. One course which it took led thro' the open land, making a chasm to the depth of several feet, and continued its march unobstructed by the solid frozen

ground or any other substance, to the distance of 370 feet; lifting, overturning and throwing out junks of frozen earth, some of which were 10 or 11 feet long by 4 feet wide; and hurling at a distance, rocks, stones and roots.—The power here displayed was truly awful, and had it fallen on a building, it would have thrown it with its inmates into ten thousand fragments. It really seemed that God's mercy is manifested in sparing our lives amidst such danger and destruction. And while we thus enjoy his mercies (mercies?), O! that we might be duly affected with gratitude of heart.

I understand that in South-West Harbor, and North-East Harbor, (in this island) several vessels had their masts rent in pieces; one had some planks torn from her, and one man was knocked down, but not killed.

Ellsworth Herald, Friday, March 4, 1853, page 3, column 1.

A reminiscence of the event by one who was in the Holden house at the time of the freak storm appeared 31 years later in *The New York Times* where your editor noticed it. The major part of the letter follows:

I don't believe there ever was a worse frightened lot of people in the world than the inhabitants of Bar Harbor were that night. That purple ball lightning flashed about and obtruded itself everywhere. There was scarcely a house that was not visited by it. At one house it entered it passed through one window and across the room and out at another window, setting fire to a box of matches that lay on a table in the middle of the room. At another house a woman was rendered unconscious by a shock, which extinguished all the lights in the house at the same time. The woman's husband was trying to find a match to strike another light when he was prostrated by another shock. These two recovered, but the man was speechless for a long time afterward. Scores of people were paralyzed by visitation of the lightning, but no one in Bar Harbor was fatally injured. The storm was not confined to Bar Harbor, but prevailed all over Mt. Desert Island. At Southwest Harbor and Northeast Harbor vessels were dismantled (dismasted?) by the lightning, and one sailor killed. There was scarcely a craft of any kind in the harbor but at least had one shattered mast.

The freaks of this strange electric visitor outside the buildings were most extraordinary. At one place one of the fiery balls struck the top of a flagpole. The pole was torn into a hundred pieces, and the lightning plunged into the earth. Usually that would have ended the career of the ordinary electric current. This ball, however, was not subdued yet, and after plowing its way to the bottom of the pole beneath the ground, between four and five feet, it started horizontally in an easterly direction. Although the ground was frozen as hard as a rock, this thunderbolt plowed a trench through for a distance of nearly 300 feet. The debris from this trench, consisting of great masses of frozen ground and stones weighing in some instances hundreds of pounds, were thrown in both directions, and some of them high in the air for long distances around. One mass of frozen earth as large as a fishing smack was hurled more than 75 feet away. Fortunately for property owners and their lives the course taken by this erratic ball of fire was through an open piece of land with no buildings near it. If it had chosen a western course it would have ploughed in under several residences, and in the inevitable wreck that must have followed scores of lives would undoubtedly have been lost.

A grove of trees that stood in those days between the residences, I think, of a family named Carter and one named Lodge, seemed to be an especially favorite spot for the lightning to play about. While the purple bolts shot in among the trees no less than six times, neither of the adjacent houses was touched. On the second visit of the lightning to the grove the tension on the nerves of the inmates became too great for them to bear, and they sought other quarters without delay. The grove was a sight to see next morning. Only a few trees were left standing. Great stones had been torn from beneath the surface and lay scattered about in the snow, which had been swept entirely away in some spots as though there had never been a flake there. Several trees had been torn up by the roots. One of these was carried 25 feet into the yard of one of the houses. Another tree, a small soruce, hung by its roots in the upper branches of a larger tree a long distance from where the smaller one had been torn up.

The New York Times, September 23, 1884, page 4, col. 6.

SUBJECTIVE ASPECTS OF BALL LIGHTNING SEEN INSIDE AIRCRAFT

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Abstract: The descriptions of the characteristics of ball lightning seen inside aircraft are influenced by an optical illusion frequently employed by film animators.

The rare, but reliably reported, occurrence of ball lightning inside aircraft has never been satisfactorily explained. In one much-discussed case, a scientific observer in an aircraft saw a luminous ball drift in the air along the aisle and apparently disappear through a door at the end.¹ There was no witness on the other side of the door to confirm this, and there is an alternative explanation which seems much more likely.

In another case, the pilot of a military aircraft saw St. Elmo's fire "dancing around the edges of the front windows" and then "a ball of yellow-white color approximately 18 inches in diameter emerged through the windshield center panels and passed at a rate of about that of a fast run . . . down the cabin passageway." About three seconds later a crew member at the rear of the aircraft reported that he had seen the ball come rolling through the aft cargo compartment and then dance out over the right wing, "rolling off into the night and clouds." A report on this incident by an authority on lightning²

was published³, but he offered no explanation, although he noted the significance of ball lightning being observed inside a closed metal structure.

In both these cases there was no explosion or any other audible noise from the luminous ball. It is difficult to understand how an object apparently floating in the air could leave an aircraft and not be carried away rapidly by the high velocity airstream outside. The explanation is evidently that the behaviour of the ball is the same as would be the case if a film animator wished to show a ball passing through the window of the aircraft and dance along the wing. He would illustrate it as progressively smaller, frame by frame, with the wing in the background, and the audience would interpret this as a movement away from the camera. In the same way, if he wished to make the ball appear to enter the aircraft from outside, he would show the ball increasing in size. The fact that it would be somewhat indistinct in outline and also jumping about to some extent would assist the illusion.

This suggested process makes it very much easier to develop a theory to account for the appearance of the ball. A brief summary of this is that the aircraft passes through a zone of very high electrical charge, as shown by the St. Elmo's fire, which causes ionisation in the atmosphere near the inside skin of the aircraft. When the aircraft flies out of the external charged zone, the internal charge is then free to dissipate, spreading negative charge rapidly by repulsion over the whole of the inside surface. As the field inside a charged cylinder is zero except at the ends, a discharge will start at one end, depending on the direction of air flow within the aircraft, by an encounter between the free electrons and the positive ions in the atmosphere of the fuselage. It may be objected that a metal aircraft would act as a Faraday cage, and that no charge can exist inside it. This is true only if the external charge is evenly distributed over the whole of the surface, which is clearly not the case when the charge is induced by an adjacent thundercloud charge.

The axial discharge of a cylindrical-sheath charge may be the cause of ball lightning in other circumstances, and where explosions are seen to occur, it is probably because there is a subsequent flash of lightning on account of the increased conductivity of the ionised channel.

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[J. MELESCUIC]

MYSTERIOUS LIGHTS

Sunday, October 5, 1980

Ghosts Lights and UFO's.

On page 3 of yesterday's Manchester Union Leader there was an article and photograph of a glowing circular object with a black spot that freelance police photographer, Robert Giglio, of Hillsborough shot with his camera, while following up one of the over 100 UFO reported sightings in the Bear Hill area of Henniker. This one was taken about four months ago and is the second one to appear in the papers since the one in the Oct. 17, 1979 issue. A former executive of Itek Corp. (a Mass. company which specializes in high technology optics) analyzed it, but could not solve the mystery.

If you look on the map Henniker is but a few miles from the town of Hopkinton, N.H. where similar glowing balls have been seen as far back as 1750. (See the attached letter to the editor that appeared in the Nov. 6, 1976 issue labeled: "Requests Further Reports of Eerie 'Ghost Lights'," that I first read about on page 39 of Ch. 1 in Part II of the book, *Extraterrestrial Intervention*, by Jacques Bergier and the Editors of INFO; Ch. 1 being labeled: "John Winthrop & UFO's in Colonial New England," by Andrew E. Rothovius of 4 Smith St., in Milford, N.H., under Part II: "Extraterrestrial Beings Among Us.")

That summer, in 1976, I also interviewed a witness to a hovering white fireball with a red border that glowed for about an hour above the Steuben, Maine Town Wharf and seen by many of the people, especially the children in town, just before dusk, which witness also said that back in the fall of 1967 their car was parked in the town gravel pit early that September night too, at about 8:30 P.M. when many "bouncing and glowing red balls" surrounded them and stalled the car on their way out.

Stonington, Maine is another spot where these globs of light occur, and in particular, above the property of Ted Graveline (who had a write-up on page 10 of *The Bangor Daily News* for Wed., Aug. 14, 1974) who told me, when I visited him one afternoon, that he sees them at night, because they follow this magnetic fault line up the coast through Blue Hill and Ellsworth, up to Steuben where a lady in town claims that two of these lines converge under her property and that she gets strange vibrations from some currents possibly produced by the UFO's that travel this line.

And after reading about The Aetherius Society of London, England, LA, CA and Detroit, Mich. on pages 10 & 11 of Lee Vincent's *Ten Years*

on the Rock Pile, about the area around Mt. Washington, and in particular Mt. Adams, I ordered a copy of their 14-page booklet in Sept. of '76 for \$1.90 entitled: "My Contact With the Great White Brotherhood," by Dr. George King, its founder and president, where on page 8 he says: "At Aetherius House in London, many times we have been talking together in the past and suddenly someone has looked up and pointed to a small blueish or pinkish globule of light which hung in mid-air near the window inside the room. Many times have we all looked around and seen this disc just before it silently passed out of an open window or even on more than one instance, through the curtains and actually through the glass of the window without leaving a trace of its former presence. I can tell you all definitely that in relating this, I am possibly solving one of the great mysteries which have puzzled Metaphysical researchers for some years, that at least most of these globules of light are used by The Great White Brotherhood to gain information for Their archives." — Most every summer a group from Detroit hikes up Mt. Adams which they say is one of the 12 "charged mountains" in the world, to form a prayer circle, converting positive energies into a subterranean battery there that later beams it up to one of their supposed spaceships that is periodically in earth's orbit to redirect to the trouble spots here on the earth. (See p. 4 of the Aug. 25-31, 1978 issue of 93 Summer Week and p. 6 of the Sept. 30, 1978 issue for details on this Society.)

Joe Hars

continues →

Ghost Lights

Manchester Union Leader, Tuesday, Aug. 24, 1976, p. 18

To the Editors: As Member No. 2359 of the Society for the Investigation of the Unexplained, I'm currently researching the Ghost Light Phenomenon.

Perhaps some of you have seen the soft mysterious glow of the phosphorus of an old rotting stump while camping at night or the flashing lights on the surface of a pond or lake. Some of these lights move along the ground like green pythons, while others stand upright. Some are white, some of a pale greenish color, and some burn with a blue flame. It is peculiar, but these "flames" never burn the grass or vegetation about them, although some of them are reported to flicker and dart like true flames. No scientific explanation has ever been found for them.

If you know of a site where this phenomena occurs, would you please write to me in Lincoln, N.H. 03251, and I'll give you a call to find out when a thorough investigation can take place

Joe Haas
P.O. Box, Lincoln

Requests Further Reports of Eerie 'Ghost Lights'

Manchester Union Leader, Nov. 6, 1976

To the Editors: With the help of my August 5th letter published on page 18 of this paper of Aug. 24, 1976 entitled "Ghost Lights," I've received some replies about glowing red balls of fire which I think are of interest: Two historic cases involve Hopkinton and Derry:

1. A man in Milford refers to C.C. Lord's "Life and Times in Hopkinton, N.H.," 1890, about Putney Hill, also known as Gould Hill, in the northern part of town facing the valley of the Contoocook. He writes that: "A patch of pine forest on the north side of this hill was said to have been an "Indian lookout," where redskin sentinels kept watch for enemy marauders. Beginning some time between 1750 and 1800, glowing, slowly moving balls floating in the air were often sighted over and near this pine forest, both by day and by night, but most often in the evenings. Around 1820, a young man, who half a century later told Mr. Lord of his experience, was followed home for almost two miles by several of these glowing balls, in the gathering dusk. They would stop whenever he himself stopped to look back at them, then resume their movement as soon as he started walking again; but they never came any closer than within 50 feet or so."

2. Mrs. Guy Eya Speare, used to write for this paper, and on pages 165-166 of her famous book of "N.H. Folk Tales," which she compiled with Mrs. Moody P. Gore in 1932, a lady from Derry wrote about "A Legend of Saddleback Mountain in Derry," that has information about round red balls of fire as big as a brick oven that were seen there. Every library in the state has a copy of her book. — Two recent cases involve Londonderry and Manchester:

3. In Londonderry, a man threw his cigarette butt out the window of his parked car, and when he thought it didn't burn out, he opened the door, but found that it was something else. When he tried to step on the glowing red ball of fire, which hovered some 6-12" above the ground, it just simply glided to the side.

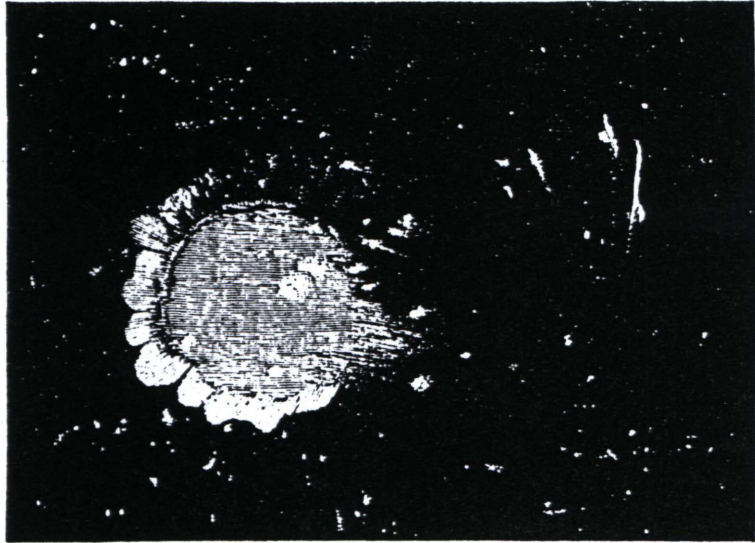
4. Two sisters in Manchester had one of these red dots of light in their house. When they tried to capture it with a cardboard box, it merely escaped by penetrating through the walls of the house, where it could then be seen outside upon occasion.

If any readers know of more historic and-or recent cases, this field office of The Society for the Investigation of the Unexplained, (S.I.T.U.) would like to be informed.

[J. MELESCIUC]

Curious Lightning.

The phenomenon of "ball lightning" is now admitted to be electrical, although Faraday and other great electricians have denied its electrical origin. Hundreds of well-attested instances have been observed



and chronicled of recent years in every part of the world. It usually appears during a thunderstorm, or when the atmosphere is highly charged with electricity, and the apparent size of the globe of light, which is never very brilliant, varies from an inch to several feet in diameter. Either it bursts with a loud explosion, which may prove destructive, or it silently vanishes in the air. Owing to its rarity there has hitherto been no photograph of the phenomenon; but our illustration is believed to represent a case which happened last summer, on July 17th, about a quarter-past ten in the evening. It was seen by Mr. Dunn, of Newcastle-on-Tyne, from the window of his residence in Westmoreland Road, which overlooks the valley of the Tyne. A thunderstorm was raging over the town and the ball of fire suddenly appeared over the river, moving as fast as a man can run. It seemed about two feet in diameter, and when it came opposite the house it stopped and vanished. About this time Mr. Dunn called to his son to expose a plate in his camera, and the cap was removed for an instant. The result was the picture which, by permission of Mr. Cowper Ranyard, we have engraved. The peculiar streaks and patches on the photograph are not, it is asserted, due to imperfect development, and similar luminosities have been observed on a lightning photograph before. The principal blotch of light is certainly very curious, and a part of the spherical outline can be traced within a kind of aura or nimbus on the left.

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BRAZILIAN SPOOKLIGHTS

by CYNTHIA NEWBY LUCE

I live in a remote Brazilian mountain village – a stranger in a strange land. I thought I was lucky to pay only \$2,600 for 66 acres, plus a spring with superb water. The locals were laughing behind my back at the stupid 'gringo' who paid so much for a piece of haunted land!

Soon I was cautiously asked if I'd seen the 'Mae de Ouro' (mother of gold). Finally someone explained to me that for at least 150 years people had been seeing a light, usually a yellow-orange glowing ball slightly smaller than a volley ball, making a slow pass across the face of the hill. It usually passed behind the house I had built. Since this is a land full of semi-legends of ghosts, and the local voodoo-type religion (Macumba, Umbanda, Condoble) entails a type of very tangible possession, I dismissed the discreet enquiries with a shrug. In my subsequent extensive travels throughout Brazil I have found the *Mae de Ouro* legend to be ubiquitous and ingrained in the culture. One follows the *Mae de Ouro* and the first body of water it crosses – river, creek or stream – is where one should look for gold. And gold is found often enough to keep interest and belief in the phenomenon alive.

The first time I saw the light on my land was one evening in June 1980 around 7.45 pm. There were five witnesses: my daughter aged eight, myself, two maids and the gardener. A yellow-orange glowing ball, slightly smaller than a standard volley ball, passed from east to west with the wavering flight of a butterfly about five feet off the ground. It was about thirty feet away from us and was passing between the garage and the house. It made a wide curving turn and headed off towards the stables and vegetable garden near the spring. My gardener, fascinated, went after it. Foolishly he reached out to touch it. The ball faded away to nothing as he put out his hand, then reappeared about fifteen feet ahead of him. He came back to the house rather unnerved because the phenomenon seemed to him to have intelligence.

I have not personally seen the light again, but my servants have seen it numerous times in the past seven years. It even swooped down on my cook as she hung out some clothes early one evening, and nearly hit her head. The phenomenon seems to prefer the colder dry months, but I have also recorded its appearance

in the hot wet season (November through April). It has even appeared in light rain. It also appears any time of night from dusk to dawn.

The villagers have become more interested in unravelling the mystery since I've been so voluble in an effort to dispel any superstitious attitudes, telling them that physicists and researchers all over the world are interested in what is widely seen as a natural phenomenon. Hardly a month passes now without at least one villager telling me of a sighting. The colour is usually reported as yellow-orange, but sometimes as blue-white; it usually, but not always, travels from east to west; and the size also varies. Reported size is to some degree, of course, dependent upon distance; from my hill across the valley to the village is about 1,200 feet as the crow flies.

During the recent UFO flap, which began before the much-publicised sightings by the Brazilian military in May 1986 and continued after the government-imposed media blackout, the number of balls-of-light sightings (some tracing a zig-zag course which may put them in a different category) has increased significantly here in the village. I cannot tell how much of this was due to excitement generated by the press; but between April and August seven people sought me out to tell me of their sightings. One neighbour saw a yellowish ball of light surrounded by a glowing medium blue about an inch thick. It passed less than ten feet from him and went off in the direction of my land.

After talking to a geologist friend with first-hand knowledge of the phenomenon, I've been trying to borrow or rent a metal or mineral detector to see whether the underlying rock, which is mostly granite, has a vein of iron which, by itself or in combination with the numerous springs, may influence the appearance of the phenomenon. I might add that this area is probably the least likely in the world to experience earthquakes, and the methane hypothesis I've also found to be invalid in this area.

If any FT readers have any questions, ideas or information, please contact me.

Cynthia Newby Luce,
Sítio Tibet, Município de Petrópolis,
São José do Rio Preto, Estado do Rio de Janeiro,
Brazil.

from 'Philosophy of Mysterious Agents'
by E.C. Rogers, Boston, 1853

CHAPTER IX.

AN INQUIRY INTO LOCAL MUNDANE EMANATIONS, IN REFERENCE TO THE PHENOMENA OF "HAUNTED HOUSES."

Mysterious agencies in certain localities in Boston — William Howitt's accounts of the strange phenomena at the miller's dwelling — An inquiry into the local influences here — Reichenbach's Od manifested in the blue, misty forms — Arguments from the observations of European philosophers on local mundane influence — The relation of this agent to the nervous system of persons — Strange phenomena of the Blocksberg — Their association with witchcraft — Causes discovered — Reichenbach's deduction — Additional deduction by the author — The most difficult question.

518. THE further consideration of the phenomena of local mundane emanations is exceedingly important in this connection, as we would in our humble way effect here, what is being done abroad by more eminent minds, in demolishing the terrific haunts of superstition.

519. The views we have already presented on the subject of mysterious agents have brought to our notice many singular and hitherto unaccountable cases, which have occurred in this city, and among some of our best and most enlightened citizens. In our researches in this city we have found dwellings, haunted at certain intervals with phenomena which the uneducated and superstitious are always certain to attribute to spirits and ghostly influences. Were we at liberty to use names, we could refer to some of the most intelligent and respectable inhabitants of Boston, who have confidentially stated to us that, for a long period, they have been troubled with mysterious occurrences in their houses, which they have never been able to account

for, till on reading the earlier numbers of this work.* Not only have they had the "rappings," but in some cases still more remarkable things. One gentleman, who may at some future time allow the use of his name, informed us that when in particular localities he has always been troubled, even from a boy, with not only strange and unaccountable sensations, but has heard voices as of persons talking, when no persons were at the spot where they *seemed* to be. His investigation led him to discover that these voices were not altogether subjective or imaginary, as he had supposed, but depended upon something out of himself. He was always sensitive to some strange influence arising from fresh running water. "Without knowing why," says another person, "I never knew the time when I could draw water without shuddering and having a dread. I never can stand over a cistern or well without the same sensation, although in my mind I fear nothing." In one particular locality the house where he lived was subjected to ghostly influences. It was, however, only one particular room where the occurrences transpired. The full particulars of this case will be brought to view at another time, and we hope with his own signature. The facts, however, in this case, are so similar to many given by certain European writers on ghostly powers, that they would hardly be new, only as having occurred more immediately in our midst.

520. The fact it presents us is, that when a peculiarly sensitive organism stands at any local point where emanates a strong current of od. or the mundane agent, and another organism, even at a distance, stands in relation to the same, an action of the organism of the one will more or less effect physical results in the atmosphere of the other.

This, we are aware, is quite a new idea. We have not obtained it, however, by conjuration, but as an inevitable deduction of not only this, but of a vast array of well-attested cases.

521. In every country, and in every age, there have been developments like the following given by William

* As it was supposed at the time.

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Howitt, of England, and well known to some of the most intelligent and worthy people of the kingdom.

522. "Between the railway running from Newcastle-on-Tyne to North Shields and the river Tyne," says Mr. Howitt, "there lie in a hollow some few cottages, a parsonage, a mill and a miller's house: these constitute the hamlet of Willington." It is the miller's house, in this hamlet, that, for a very long period, has been subjected, at intervals, to some of these most remarkable phenomena. This house stands near the mill, on a sort of little promontory, round which runs the channel of a water-course, which appears to fill and empty with the tides. The house is owned and occupied by Mr. Joseph Proctor, an honest Quaker miller. Mr. Howitt visited the spot, and made himself acquainted with the curious facts connected with it, and afterwards published them among his "Visits to Remarkable Places." The phenomena appear to be the following: A particular room of this house is not only haunted with strange sounds, such as those made by human occupants, when, indeed, no flesh and blood can be found in it: but when persons occupy it there is often such a disturbance, and such strange appearances of bluish lights and ghostly appearances, creating horrid sensations and swoonings, as to render it impossible to be occupied as a sleeping apartment.

523. Dr. Edward Drury, hearing of the above, and wishing to test the matter, proposed to Mr. Proctor, on the 17th June, 1840, to visit the house and occupy that part of it, as he wished to investigate the phenomena. Mr. Proctor acceded to the proposals. Mr. Drury arrived on the 3d July, about the time of the arrival of Mr. P., who had been absent for several days on business. After the house had been locked up, every corner was examined minutely. Dr. Drury had a friend to watch with him. The following is Mr. D.'s account:

524. After minutely inspecting every part of the house, provided with lights, "I sat down on the third story landing, fully expecting to account for any noises that I might hear in a philosophical manner. This was about eleven o'clock, P.M. About ten minutes to twelve, we both

heard a noise, as if a number of people were pattering with their bare feet upon the floor: and yet, so singular was the noise, that I could not minutely determine whence it proceeded. A few minutes afterward we heard a noise, as of one knocking . . . among our feet! This was followed by a sound like one coughing in the haunted room: then followed a rustling sound, as of one coming up the stairs. At a quarter to one I took up a note, which I had accidentally dropped, and began to read it: after which I took out my watch, in taking my eyes from which, they became riveted upon a closet door, which I distinctly saw open, and saw also the figure of a female, attired in *grayish garments*, with the head inclining downward, and one hand pressed upon the chest, as if in pain, and the other, — namely, the right hand, — extended toward the floor, with the index finger pointing downward. It advanced, with an apparently cautious step, across the floor, toward me; immediately as it approached my friend, who was slumbering, its right hand was extended toward him. I then rushed at it, giving, as Mr. Proctor states, a most awful yell: but, instead of grasping it, I fell upon my friend, and I recollected nothing distinctly for nearly three hours afterward. I have since learned that I was carried down stairs in an agony of fear and terror." In another letter Mr. Drury says: "I am really surprised that I have been so little affected as I am after that horrid and most awful affair. The only bad effect that I feel is a heavy dulness in one of my ears. I call it a heavy dulness, because I not only do not hear distinctly, but feel in it a constant noise. This I never was afflicted with before."

525. We are to attribute much of this physical effect upon Mr. D. to his fright. But the question with the candid is, What was the cause of *this*? It is useless to endeavor to dismiss the question, and the thousands of cases similar to the above, with the senseless commonplace that it is all trick and imagination: for the facts will still haunt us, and even the scoffer is at any time liable to have them meet him in his path, when his philosophy will fail him, and,

like the sceptic Drury, he will lose his senses and his reason in his fright.

526. We are now, in order to obtain every possible point of view in this case, to observe the following more recent phenomena witnessed at this house, and testified to by four credible witnesses, "who," as Mr. Howitt states, "had the opportunity of scrutinizing for more than ten minutes."

527. These four persons saw, while standing on the outside of the said miller's house, a luminous body or appearance, which "glided backward and forward about three feet from the floor, or level with the bottom of the second story window, seeming to enter the wall on each side, and thus present a side view in passing. It then seemed to rest still in the window, and a part of it came through both the blind, which was close down, and the window, as it intercepted the view of the framework of the window. It was semi-transparent, and as bright as a star, diffusing a radiance all around.

528. As it grew more dim, it assumed a *blue tinge*, and gradually faded away "from above downward." There was no moonlight, nor a ray of light visible anywhere about, and no person near.

529. Mr. Howitt states further that he was assured, by another gentleman who had lodged at this house, that he had been strangely disturbed at night. "He had resolved, before going, that if any such noises occurred, he would speak, and demand of the invisible actor who he was and why he came thither: but the occasion came, and he found himself unable to fulfil his intention." Thus showing that he had taken for granted, if there was anything unusual, it must be by some ghost: and as there happened to be that remarkable thing which he believed to be ghostly, he had no courage to speak to it. He states that as he lay in bed he heard heavy sounds, as of a person stepping round upon the floor, and with a stick struck upon the banisters. When it seemed to approach his door, he lost all heart to call upon it, but sprang out of bed, and rushed to the bottom of the stairs.

530. Two young ladies also stated to Mr. H. that on stopping in the same house over night they had been annoyed. Not knowing, however, that the house was considered haunted, they supposed that robbers had gained entrance, and, therefore, gave alarm: when search was immediately made, without finding any cause for the sounds.

531. On another night their bed was violently shaken, and they thought the curtains were moved, even hoisted up; and so the next night they resolved to take the curtains down, and to sleep without them. On this night, "as they happened to be awake," and the chamber was somewhat light, they perceived "a misty substance of a bluish gray hue, which seemed to them to come out of the wall at the head of the bed, and through the head-board, in a horizontal position, and rest over them. They saw it most distinctly: they saw it, as a female figure, come out of and pass into the wall.

532. This apparent female form, however, was never seen to have eyes; sometimes the luminous appearance seemed to assume the form of a man, but always *without any head*. The same luminous appearance has also been seen to be suspended or resting over the well near the house.

533. These appearances and disturbances are stated to be only at intervals: and Mr. Proctor, proprietor of the house, has found records in an old book, which show that the like things occurred in an old house that stood on the same site, two hundred years before.

534. It is not, therefore, anything owing to the house itself, but to the *locality* of it: and what can we determine with regard to the peculiarity of this? Let the reader here dispossess himself of every ghostly notion, and turn his attention to the experiments of Reichenbach, as well as to the facts we have already presented regarding local emanations and influences.

535. It is a fact too well established by this philosopher to be readily cast aside, that certain substances, as well as all chemical action, and, indeed, every form of material change, not only evolves a new form of agency, which he

terms od or odyle, but also excite the phenomenon of light, flame, luminous ether or vapor, and that one of the prevailing colors of this is blue and bluish gray. He has also demonstrated that this new agent has a peculiar relation to, and influence upon, the nervous system; — that, indeed, it is the agent that establishes the sympathetic relation, not only between one organism and another, but also between a human organism and the vast world of unorganized matter; and that certain constitutions or temperaments are peculiarly and remarkably susceptible to its influence, even from birth: and, still further, that by certain derangements of the nervous system the whole organism, especially the nerve-centres, falls more readily under its influence.

536. He also shows by his numerous experiments, that certain metallic substances emit this force with greater energy and power than others. In immediate connection here, let the reader bear in mind what we have shown with regard to the influence of metallic lodes and veins of ore, especially the experiments of Thouvenel upon Bléton, of Ritter upon Campetté, and of Kerner upon the Seersess of Prevorst, and the conclusion must appear inevitable of the identity of forces.

537. If, then, the reader places these facts, with their deduction, by the side of the facts detailed by Howitt, — if he considers the peculiarity of location, the effects of the local influence on the nervous system, the blue and gray misty forms, — reason must inevitably decide for the scientific view, though a blind superstition will be rampant with the adjugment.

538. True, Reichenbach, in his nice and delicate processes of experimentation, does not prove the odic agent to have great power; and who would suppose that in the equally delicate experiment of Matthucci upon the electric currents of the muscles, that this agent, while playing among the rain-drops of a summer's day, can shake the earth and the very heavens? Whoever supposes that, because Reichenbach did not show his od capable of making the table dance, that therefore it is not od that effects this

— that because his patients saw the odic smoke or ether flow over the surface of bodies, that, therefore, odic light does not and cannot, under any circumstances, enter into and pass through solid bodies, as seen at the miller's house, — must assume to know beforehand the utmost extent of its energies, and its infinite modes of action. None but the most superficial thinkers will overlook the numerous points of agreement, and see only the trivial discrepancy.

We have made these latter remarks, because we have already noticed, what we anticipated in our introduction, that certain theorists will deny the relation of Reichenbach's agents to the so-called spiritual phenomena, because the baron nowhere proved that it moved tables, and produced raps without human contact.

539. We have, however, independent of Reichenbach, demonstrated the evolution of a new physical agent in relation both to the earth and the human organism, whereby external objects are moved in a most surprising and unusual manner; that, consequently, the spiritualist has no right to claim that the agent in the rappings is anything more than a physical agent, intimately related to the organism and to the earth. As they, on the one hand, assert it to be spirit agency, we deny this, and demand the proof, which, so far, they have not given; whereas, we, on the other, assert the agent that produces such phenomena to be physical, and so far we have proved our assertion. And here we demand of them, as honest men, to consider candidly our deductions and their facts; and let it be distinctly understood that we challenge their attention to our investigations and deductions. If we are in error in one point, we demand it of the spiritual theorists to demonstrate that point, and we will publicly recant. If they will show this work to contain a system of errors, we will call in every copy, and they shall be publicly burned.

540. It is not to be supposed that Reichenbach's investigations cover any more ground than he occupied; but it is not to be denied that the agent itself, which he has demonstrated to have an existence and action in everything, is indeed a force, which, though mild under one form of

evolution, may be under others one of the most powerful and terrific agents in nature. The mild form in which electricity was first known, made it a mere harmless plaything: it had as little significance to the ignorant in those days, as Reichenbach's *od* has to the same class in the present age. But, as new investigations opened new resources of the electric force,—as the Leyden jar and the voltaic pile became known, and when our own immortal Franklin had demonstrated that this earthly power was the same as that that shakes the heavens,—then it was proved that a general force of nature exhibits its mild or its tremendous energies precisely according to the circumstances and conditions of its evolution.

541. If, as Reichenbach has demonstrated, chemical action evolves the *odic* force and the *odic* light,—and if, as he has also demonstrated, certain metallic substances, and the friction of bodies, effect the like result,—it is not to be denied that the same substances and processes, below the surface of the earth, will, according to conditions and circumstances, have a more or less powerful influence upon sensitive persons, standing over or near those localities, since this agent is found to have a specific influence upon the nerve-centres of particular persons. Now, as before shown, it is exactly at this point that these demonstrations meet with those of Thouvenel, Ritter, Amoretti, Kerner, and a host of other savans, with regard to the phenomena of rhabdomancy.

542. Although we are unable to assert from absolute knowledge that there *are* unusual chemical processes, or metallic lodes, or any such like causes of *od*yllic emanation in the localities of dwellings where the phenomena above described take place, yet the phenomena in all such localities bear such evident characteristics of this nature, that it requires no small degree of superstitious presumption to deny the analogy, and to appropriate the latter to the support of popular delusions.

543. It is well known that a class of superstitions is connected with certain localities,—places where, at intervals, strange lights have been seen, and strange sounds heard.

The heights of the Blocksberg, in Germany, are famous for the strange and startling scenes that have been witnessed there by hunters, charcoal-burners, poachers, and woodcutters: and it was “on the Blocksberg that spirits, witches and devils, were believed to collect in great numbers at night.” “Everything,” says Reichenbach, speaking of this superstition, “has an origin; and now we see that this myth is not without some foundation. It was discovered, long ago, that there are rocky points on the Blocksberg which are strongly magnetic, and divert the magnetic needle: more accurate investigations have shown that these rocks contain fragments of magnetic iron ore,—for instance, the Floenstein, and Marcher, and others. The necessary deduction from this is, that they emit *odic* flames, and that these must be visible at night to sensitive eyes.”

544. We are here to add another important deduction, namely, that as the *odic* force emanating from magnetic substances has a specific action upon the nerve-centres, and—as we have shown in a number of instances—brings those centres into immediate relation to the substances or points whence issues the force,—and as the agent also induces in the brain the so-called clairvoyant sense,—it follows that those persons in the neighborhood of such localities as the Blocksberg, who are susceptible to the *odic* agency, will, without the reason being known, fall into trances, when they will be attracted to those localities, and either bodily or in the fancy of the brain pass to them. In the latter case, the brain is made to act in reference to such locality.

545. Now, it is a remarkable fact, which we have found exemplified in a great many instances (some of which will be noticed in the following chapter), that when the brain and nervous system are brought into the above-named condition, the *odic* flame or vapor, at the point to which the nervous system has this strong relation, will assume the human form, and, indeed, as we shall show, will have its action repeated there, as if the living being were present, instead of its ghost.

546. The feasts and sabbaths of witches are not therefore

a mere subjective fancy, but an outstanding representation, an action of the brain and nervous system repeated at a distant point to which the former has become specifically related.

547. Now, it is this singular truth that unfolds, at once, not only some of the most bewildering mysteries of witchcraft, but those also of the so-called haunted localities, and the most difficult phenomena of the present day. It is not always, however, that the odic form will be eliminated, appreciable to the sense of sight.

That seems to depend upon conditions, partly on the side of the spectator, partly on the relative odic condition of the local point occupied by the spectator, and partly upon the relative condition of the nerve-centres of the individual who is at a distance, and whose physical organism is represented in ghostly or odic form.

548. The most usual phenomena presented are those which affect the sense of hearing. For example, the sounds of mechanics at work will at night frequently be represented in such localities, where the conditions of mundane agency are favorable.

549. According to what we have already shown, with regard to mundane emanations in the localities of mines, it would be natural to infer, that, if our views are correct, such strange phenomena should be found frequently to occur in those places. Accordingly, we find that strange knockings and the ghostly sounds of people at work in mines are facts well known to some of the most sensible men,—to overseers and superintendents, as well as to the workmen themselves. Says C. Crowe,* “There is a strong persuasion, I know, among the miners of Cornwall, and those of Mendip, that these visionary workmen are sometimes heard among them; on which occasion the horses evince their apprehensions by trembling and sweating.” Of course, it would be quite impossible that a thousand exaggerations and superstitious notions should not grow out of the action of the wonderful mundane influences in relation to the nerve-centres, under such circumstances. It is generally believed, by the most

* Night Side of Nature, p. 280.

ignorant, that some horrid murder has been committed in such places; and on this account some of the most innocent and virtuous persons have fallen under suspicions of crimes that never have been committed in those places. Not a few instances of this kind have occurred in England and other European countries; and, according to present indications, in this country there is a class of persons fast verging to the same reprehensible whims. While, therefore, we would accept of the phenomena as the simple facts of nature, we are forced, as honest inquirers into their causes, to cast aside as worthless rubbish the vulgar superstitions with which they are so generally associated on the part of the ignorant.

Catharine Crowe's inquiries into the phenomena of the so-called haunted houses have been very extended and minute. Many of her accounts, however, are given in the language of the popular superstition, which she seems very much to favor. The reader of her work should therefore be exceedingly cautious of accepting her interpretations of mysterious phenomena.

550. The well-authenticated cases she has furnished afford indubitable evidence, in connection with the facts we have already advanced, that remarkable agencies are, in these special localities, brought out into wonderful development, and that those agencies (as developed in such places) are more or less frequently related to the organisms of particular persons yet living, and at a distance, and in some cases representing the peculiarities of those who are dead. It is the latter class of facts (of which we have many in the present age and in this country) that staggers and confounds the reasoning powers of so many among us.

551. The error is in concluding that, because some of the characteristics of a dead being are represented in the phenomenal exhibitions of this mundane agent, that therefore the agent is no less than the soul or spirit of the dead person.

We shall in the next chapter present a class of facts which will throw no little light upon that most difficult question in these inquiries, and which do not seem to have been properly regarded. The facts will afford the reader a somewhat new view of nature, and of human relations.

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QUELQUES SINGULARITÉS DE LA FOUDRE

On a noté depuis fort longtemps les phénomènes très singuliers qui accompagnent parfois les manifestations électriques de l'atmosphère, mais bien des observations étranges restent sujettes à caution à cause de réflexes de peur ou d'épouvante qui les accompagnent. Cependant les faits se précisent au fur et à mesure et le tonnerre en boule, par exemple, qui a laissé sceptique pendant longtemps, est aujourd'hui une réalité hors de toute contestation, bien qu'assez rare. Il serait donc utile de grouper les descriptions qui paraissent devoir être admises comme définitives et exemptes de causes d'erreur importantes, et c'est pourquoi il nous a paru intéressant de relever dans la chronique météorologique, et de rapprocher, deux singularités curieuses qui se sont produites la même année.

I. — Au mois de mai 1907 ⁽¹⁾ (l'observateur ne se rappelle pas la date exacte) la foudre tomba dans une propriété des environs de Bleiberg, à 510 mètres d'altitude environ. Le fluide atteint d'abord un tilleul, distant de 5 mètres de l'habitation, le suit en traçant autour du tronc une spirale jusque près du sol, saute ensuite sur un sureau situé tout contre la maison, décrit aussi une spirale de haut en bas, suit une racine qui passait sous le mur de la maison et arrive ainsi sous l'âtre de la cuisine dont elle disloque plusieurs carreaux — et disparaît.

Deux garçons de ferme, qui se trouvaient devant l'habitation, furent projetés à 3 mètres de là, mais en furent quittes pour la peur : ils ne ressentirent qu'une sensation de chaleur qui ne dura, du reste, qu'un instant.

Jusque là, rien d'exceptionnel : mais le mystère va commencer.

Deux heures après ce coup de foudre, on voulut allumer le feu de la cuisine ; une terrible explosion se produit. De nouveau, les pierres de l'âtre sont démolies, et une boule de feu de la grosseur d'une pomme passe en frétilant devant la personne qui allumait le feu et va se perdre dans le conduit de la cheminée. Or, à ce moment, le ciel était tout à fait rasséréné. S'agit-il d'un éclair en boule ? le phénomène est si bizarre qu'on peut lui prêter encore cette nouvelle bizarrerie.

N'est-ce pas plutôt une sorte d'explosion ? Le premier coup de foudre a démoli la construction de l'âtre, qui devait être ancienne puisqu'un arbre avait eu le temps de passer une racine au-dessous. N'y avait-il pas là une accumulation de gaz combustibles, hydrogène, gaz des marais, dûs à des décompositions organiques ? Le premier coup de foudre lui a donné le moyen de s'échapper et il a suivi naturellement la voie de la cheminée, se mélangeant avec l'air qui y circulait. Quand la paysanne a approché une allumette, le gaz a explosé, démolissant facilement ce qui restait de l'âtre ébranlé et, la combustion se communiquant

(1) D'après A. F., *Bull. de la Soc. belge d'Astron.*, 1908, p. 163.

rapidement à la colonne qui se trouvait dans la cheminée, a dû parcourir la partie visible de celle-ci sous forme d'une masse enflammée se déplaçant rapidement.

Cette explication du phénomène paraît plus plausible que celle qui l'attribue à une réserve d'électricité qui serait restée 2 heures, sans se diffuser, dans le sol humide.

II. — Cette même année 1907, dans le Lyonnais, fut à peu près normale au point de vue orageux : on relève 41 jours orageux, alors que la moyenne annuelle est de 38,2. Même, en ce qui concerne la grêle, l'année est assez calme et les dégâts sont très inférieurs à la normale.

Or, à peu de distance de Lyon, nous avons une observation précieuse d'un éclair en chapelet, effectuée par un des observateurs les plus sagaces des phénomènes météorologiques (1).

Le 15 août 1907, au Sappey, près de Grenoble, à 1.000 mètres d'altitude environ : un orage formidable, qui avait duré plus d'une heure, commençait à s'éloigner vers l'E. N. E. lorsque, vers 8 heures du soir, se produit un éclair vertical, très brillant et légèrement sinueux ; une seconde après lui, au même endroit, succède un éclair en chapelet (2), un peu plus faible, de couleur rougeâtre, formé de traits lumineux séparés par des intervalles obscurs. Plusieurs personnes virent simultanément, et très distinctement, ce phénomène.

Sept secondes environ après le premier éclair, un fort roulement de tonnerre se fit entendre, ce qui donnait à peu près une distance de 2 kilomètres entre le lieu d'observation et le point où l'éclair s'était produit : en comparant la grandeur apparente des traits lumineux avec celle des maisons, des arbres et d'autres objets situés à distance, on peut fixer à 30 mètres environ la longueur des traits de feu et à 20 mètres celle des intervalles qui les séparaient. L'éclair comprenait plus de 20 traits lumineux : il avait donc un kilomètre de largeur.

Cette observation, faite par Michel Luizet et, simultanément, par plusieurs autres personnes, confirme l'existence si rarement signalée des éclairs en chapelet : grains ou traits lumineux interrompus, éclairs en boule, toutes ces formes sont d'autant plus intéressantes qu'elles sont plus rares, étudiées avec moins de précision par des curieux non avertis plutôt que par des professionnels. Et c'est pourquoi on doit être reconnaissant au savant astronome qu'était M. Luizet d'avoir résumé avec précision son observation et ses impressions.

Il est à désirer que les promeneurs ou les voyageurs notent sans se troubler, et avec la plus grande précision, toutes les circonstances de telles apparences, afin de les communiquer à la presse scientifique : car les données complètes sont encore beaucoup trop rares pour que l'on puisse songer même à l'ébauche de la moindre théorie.

Jean MASCART.

(1) *C. R. de l'Ac. des Sciences*, 4 novembre 1907.

(2) Les éclairs en chapelet sont très rares et présentent un intérêt essentiel pour la théorie de la foudre globulaire. G. Planté est le premier qui les ait observés avec précision en 1876 et W.-N. Gennings en a photographié : pour l'historique et la théorie de Planté, voir un article assez complet dans *La Nature*, 1894 (1), p. 323.

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Communiqué par : Marc HALLET

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SUR UN CAS DE FOUDRE GLOBULAIRE

Le phénomène dit du « tonnerre en boule », ou de la foudre globulaire est assez rare pour que l'on attache un certain prix aux bonnes observations d'une apparence qui délie encore la théorie : c'est pourquoi je désire résumer ici toutes les indications que je trouve dans une longue correspondance et des papiers de famille.

L'observateur est un nommé G. Klein, alors instituteur à Wasselonne (Bas-Rhin) et plus tard professeur de mathématiques à Thann (Haute-Alsace) : le phénomène s'est produit à Wasselonne dans sa salle de classe.

Disposition de la salle de classe, située au rez-de-chaussée : la salle renferme deux rangées de tables placées des deux côtés d'un couloir d'environ 50 centimètres de largeur ; à l'une des extrémités de ce couloir se trouve la porte d'entrée, à l'autre l'estrade du maître. Au milieu de la salle, un peu à côté du couloir, était placé le poêle, formé de trois manchons en fonte superposés et joints ensemble par de la terre glaise recouverte de plombagine ; les tuyaux partaient du milieu du couvercle du poêle, montaient vers le plafond et se dirigeaient vers une cheminée en passant au-dessus de l'estrade.

Par une journée du mois de juin 1849, après-midi, au moment où les élèves quittaient l'école, éclate au-dessus de la ville un violent orage suivi d'une forte pluie : plusieurs élèves, environ une dizaine, restèrent avec M. Klein dans la salle de classe, le maître assis à l'estrade et les élèves sur les bancs qui étaient de l'autre côté du couloir par rapport au poêle. Tout à coup, tous furent terrifiés par un fracas épouvantable et, au même instant, G. Klein aperçoit dans le couloir, à

côté du poêle, une boule ayant l'aspect d'une boule de feu mêlée de vapeurs condensées : elle paraissait avoir un diamètre d'environ 12 centimètres et s'agitait dans le couloir par des mouvements vibratoires entre le poêle et la table voisine de l'autre côté du couloir, en faisant entendre un sifflement comme si l'on prononçait la lettre SSS ; au bout de peu de temps, à peu près deux secondes, elle disparut comme par enchantement en laissant après elle une légère odeur que Klein note comme analogue à celle de gaz azotiques.

Les élèves ne songèrent pas de suite à quitter la salle après le coup de foudre et restèrent encore quelque temps à leurs places, immobiles de terreur ; de son côté, le maître restait assis à l'estrade, les yeux fixés sur le globe lumineux et pour lequel il ne lui paraît pas d'illusion d'optique possible. Quand le globe eut disparu, inspiré par l'odeur, G. Klein se précipite vers une fenêtre pour l'ouvrir à deux battants : précaution d'ailleurs superflue, car l'odeur est restée faible et n'aurait pas pu produire une asphyxie.

Klein, aussitôt après, examina l'endroit du plancher où s'était trouvée la boule et où il y avait assez de poussière : cette poussière n'a pas été remuée du tout. A une petite distance du poêle, environ 40 centimètres, il y avait dans le plancher un clou très gros qui, n'ayant pas été bien enfoncé, faisait saillie au dehors : ce clou, après le coup de foudre, n'existait plus et, à la place où il se trouvait, un morceau de plancher fut arraché ; on n'a pas pu retrouver le clou et sa place ne fut marquée par aucune trace.

Les quelques élèves qui étaient dans la salle de classe s'étaient mis dans les deux ou trois premiers bancs et ne purent voir le globe de feu, à l'exception de celui qui était à une petite distance du poêle et qui fut légèrement atteint — et dont le témoignage n'est pas relévé : il faut d'ailleurs compter avec la terreur. Personne ne fut gravement atteint — au bras gauche, tourné vers le couloir, l'élève le plus rapproché du poêle eut quelques bleus ne lui causant du reste pas de douleurs, mais il eut l'ouïe un peu dure pendant deux ou trois jours.

La cheminée était brisée et, au poêle, il y avait des traces de fusion consistant en quelques bourrelets grands comme des lentilles au bord inférieur des deux manchons supérieurs : ceci guide Klein pour imaginer quelle fut la marche de la foudre et il estime que le globe lumineux ne se serait peut-être pas produit si, à partir du poêle, la conductibilité n'avait pas été interrompue.

Le professeur ne croit pas que le globe ait pu arriver du dehors : en effet, toutes les fenêtres étaient fermées et il croit difficile d'admettre qu'un globe électrique soit entré par la cheminée, ait suivi les tuyaux et soit sorti par l'ouverture du portillon du poêle. Il admet donc que le *fluide électrique* (?) entré par le processus ci-dessus, « arrivé au bas du poêle et ne trouvant plus de bon conducteur, s'est ramassé sur soi-même avec condensation de vapeurs atmosphériques ».

Comment a disparu cette boule ?

Un détail de construction fournit une explication. Devant la porte d'entrée de la salle de classe il y avait, au niveau du plancher, un passage dallé non couvert en sorte que, soit directement par la pluie, soit par l'entrée des élèves après midi, le plancher a été mouillé depuis la porte jusqu'au poêle : Klein a eu l'impression que la boule a disparu vers la porte en s'étendant en nappe (elle aurait retrouvé un bon conducteur ?) ; il affirme que cette disparition s'est produite « en un clin d'œil », sans détonation et sans éclat.

Faute d'en pouvoir imaginer une explication, les savants les plus distingués furent souvent portés à nier la réalité de la foudre globulaire et l'on fut un peu surpris lorsque le physicien J. Violle en décrivit une observation personnelle devant l'Académie des Sciences.

Il serait grand temps qu'un amateur de science voulut bien consacrer quelque temps à relever, dans les divers périodiques scientifiques, les descriptions déjà assez nombreuses de ce phénomène très curieux, afin d'en déterminer les caractères communs, origine ou terminaison, ce qui pourrait guider vers une théorie.

Jean MASCART.

P. S. — Notre correspondant M. Brun nous informe qu'il a été, lui aussi, témoin d'un éclair en chapelet à Huriel (Allier), pendant l'été 1905 (voir la note du Bulletin de Février p. XL).

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